

IPR2025-00644
Patent No. 9,208,423

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD., and
SAMSUNG ELECTRONICS AMERICA, INC.,

Petitioners,

v.

ICASHE, INC.,

Patent Owner.

Case IPR2025-00644

Patent No. 9,208,423

**PATENT OWNER'S PRELIMINARY RESPONSE
UNDER 35 U.S.C. §313 AND 37 C.F.R. §42.107**

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PATENT OWNER'S EXHIBIT LIST

Ex. 2001	Complaint for Patent Infringement, <i>iCashe, Inc. v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.</i> , Civil Action No. 2:24-cv-00429, Dkt. 1 (June 6, 2024)
Ex. 2002	Defendants Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.'s Answer and Defenses to Plaintiff's Complaint for Patent Infringement, <i>iCashe, Inc. v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.</i> , Civil Action No. 2:24-cv-00429, Dkt. 25 (October 1, 2024)
Ex. 2003	Defendants Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.'s Invalidity Contentions, <i>iCashe, Inc. v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.</i> , Civil Action No. 2:24-cv-00429, (November 20, 2024)
Ex. 2004	Order, <i>iCashe, Inc. v. Samsung Electronics Co., Ltd. and Samsung Electronics America</i> , Civil Action No. 2:24-cv-00429, Dkt. 38 (May 1, 2025)
Ex. 2005	Affidavit of Service of Complaint, <i>iCashe, Inc. v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.</i> , Civil Action No. 2:24-cv-00429, Dkt. 11 (June 17, 2024)
Ex. 2006	Plaintiff iCashe, Inc.'s Notice of P.R. 3-1 Disclosures and P.R. 3-2 Production, <i>iCashe, Inc. v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.</i> , Civil Action No. 2:24-cv-00429, Dkt. 16 (September 5, 2024)
Ex. 2007	Notice of Compliance, <i>iCashe, Inc. v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.</i> , Civil Action No. 2:24-cv-00429, Dkt. 36 (November 20, 2024)
Ex. 2008	Defendants' Ineligibility Contentions, <i>iCashe, Inc. v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.</i> , Civil Action No. 2:24-cv-00429, (November 20, 2024)

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Ex. 2021	<i>Reserved</i>
Ex. 2022	<i>Reserved</i>
Ex. 2023	Defendants’ Invalidity Contentions, Exhibits H, <i>iCashe, Inc. v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.</i> , Civil Action No. 2:24-cv-00429, (November 20, 2024)
Exs. 2024 – 2027	<i>Reserved</i>
Ex. 2028	Defendants’ Ineligibility Contentions, Appendix E, <i>iCashe, Inc. v. Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.</i> , Civil Action No. 2:24-cv-00429, (November 20, 2024)
Ex. 2029	<i>Reserved</i>
Ex. 2030	<i>Reserved</i>
Ex. 2031	Declaration of Marc E. Levitt, Ph.D.
Ex. 2032	Silicon Labs, <i>AN148: Magnetic Stripe Reader</i> , Rev. 1.3 8/08 (2008)
Ex. 2033	<i>Mimic</i> , American Heritage College Dictionary (3d Ed., 1997)

I. PRELIMINARY STATEMENT

Pursuant to 37 C.F.R. § 42.107, Patent Owner iCashe, Inc. (“iCashe”) submits this Preliminary Response to the Petition for *Inter Partes* Review (“IPR”) of U.S. Patent No. 9,208,423 (the “’423 patent”). Paper 2 (“Petition”). Petitioners Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, “Petitioners”) challenge the validity of claims 1-5 and 8-18 of the ’423 patent. For the reasons identified in Patent Owner’s Memorandum in Support of Discretionary Denial, institution should be discretionarily denied pursuant to 35 U.S.C. § 314. Paper 7 (“Discretionary Denial Memorandum”). Namely, (1) the district court trial in the related litigation will precede a final written decision by five months; (2) Samsung waited more than nine months to file its petitions for *inter partes* review; (3) the district court denied Samsung’s motion to stay and will likely reject a renewed motion; (4) *inter partes* review will not moot the district court proceedings; (5) the petition relies on extensive expert testimony; and (6) Samsung delayed challenging the ’423 patent for nearly ten years.

In addition to the reasons identified in Patent Owner’s Discretionary Denial Memorandum, *inter partes* review should not be instituted because the Petition fails to establish a reasonable likelihood that any of the challenged claims are unpatentable. The references and combinations asserted in the Petition do not disclose all of the limitations of the challenged claims, as discussed below and

confirmed in the Declaration of Marc E. Levitt, Ph.D.—who worked as a POSITA in the field at the time of the inventions. In addition, the Petition advances unsupported arguments that a POSITA in the relevant would have been motivated to combine references that address different technical issues and defeat each other’s goals. Accordingly, Patent Owner requests that the Board deny institution of *inter partes* review.

II. FACTUAL BACKGROUND OF THE ’423 PATENT

The inventors of the ’423 patent developed an innovative technology that advanced the state of the art when filed. In 2005, with the prevalence of mobile phones growing rapidly across the world, inventors Dr. Narendra, Mr. Tadepalli, and Mr. Spitzer envisioned a future in which mobile phones would replace consumers’ wallets. They set out to invent a mechanism for consumers to use their phones, instead of cash, checks, or credit cards, to complete point-of-sale transactions. Ex. 2031, ¶ 36. The ’423 patent claims are directed to circuitry for high-performance communications between mobile devices and point-of-sale payment terminals to facilitate speedy mobile contactless payments—a technology that is today commonly referred to as “tap to” functionality. *Id.* at ¶ 37.

The ’423 patent inventors also recognized that their solution would need to interface with existing point-of-sale infrastructure in order to maximize adoption. In 2005, point-of-sale terminals relied primarily on magnetic stripe readers through

which consumers would physically swipe a credit card with a magnetic stripe.¹ Ex.1001, 1:22-25; Ex. 2031, ¶¶ 39-40. The inventors therefore sought to develop apparatuses, systems, and methods through which a mobile phone could securely communicate with a traditional magnetic stripe reader to affect a transaction in a contactless manner and without a physical card swipe. *See, e.g.*, Ex. 1001, 3:3-6, 4:17-22, 4:64-67; Ex. 2031, ¶ 41.

The '423 patent, entitled “Mobile Device with Time-Varying Magnetic Field and Single Transaction Account Numbers,” was filed as U.S. Pat. App. No. 14/833,113 on August 23, 2015. The '423 patent claims priority to the original patent in the priority chain, U.S. Pat. No. 7,581,678, the application for which was filed on February 22, 2005 as U.S. Pat. App. No. 11/063,291.

The Petition challenges 16 claims of the '423 patent: 2 independent claims (claims 1, 9, and 15) and 15 dependent claims (claims 2-5, 8, 10-14 and 16-18).

Claim 1 of the '423 patent recites:

[1.pre] A mobile phone comprising:

¹ In 2005, while magnetic stripe cards and readers were prevalent, smartcards, i.e, those that were the shape and form of a magnetic stripe card, but were embedded with a small microprocessor that interacted with a different type of coordinating reader, were also becoming more common. Ex. 2031, ¶ 40.; Ex. 1001, 3:40-51.

[1.a] circuitry to produce a time-varying magnetic field that mimics a swipe of a magnetic card;

[1.b] a processor coupled to the circuitry to cause the circuitry to produce a time-varying magnetic field that represents a single transaction account number.

Ex. 1001, 16:9-14.

Claim 9 recites:

[9.pre] A mobile phone comprising:

[9.a] circuitry to produce a time-varying magnetic field that mimics a swipe of a magnetic card;

[9.b] smartcard circuitry for performing transactions using single transaction account numbers; and

[9.c] a processor coupled to the smartcard circuitry and the circuitry to produce a time-varying magnetic field.

Id. at 16:29-35.

Claim 15 recites:

[15.pre] A mobile phone comprising:

[15.a] circuitry to produce a time-varying magnetic field that mimics a swipe of a magnetic card;

[15.b] circuitry to enable use of single transaction account numbers; and

[15.c] a processor coupled to the circuitry to produce a time-varying magnetic field and to the circuitry to enable use of single transaction account numbers, the processor configured to cause a time-varying magnetic field to be produced that represents a single transaction account number.

Id. at 16:47-57.

The inventions claimed in the '423 patent improved the process of effectuating financial transactions by integrating an electronic transaction card into a mobile device. Ex. 1001, 2:16-22. Prior to the '423 patent, financial transactions required an electronic transaction card, like a credit card, to be swiped through a card reader, such that “[w]hen the card is swiped through a magnetic card reader, the information is transferred to the magnetic card reader to perform a transaction.” *Id.* at 1:22-25. Rather than requiring a physical swipe, the '423 patent contemplates implementing the invention by “emulat[ing] the swipe of a credit card.” *E.g., Id.* at 3:3-6.

To do this, the invention of the '423 patent includes a stripe on an electronic transaction card from which “one or more time-varying magnetic fields may emanate.” *Id.* at 2:62-64. These time-varying magnetic fields may “communicate with a magnetic card reader.” *Id.* at 2:64-66. These communications are used to effectuate transactions, including financial transactions, among other types. *See id.*

at 3:40-47. In this way, “intelligent device 102 may program electronic transaction card 104 to operate as a credit card, a debit card, or the like.” *Id.* at 2:52-56.

In the invention of the ’423 patent, the intelligent electronic device is a mobile phone. *Id.* at 4:34-38; 16:9-16 (claim 1); 16:29-35 (claim 9), 16:47-57 (claim 15). The electronic transaction card of the ’423 patent need not have a particular form factor, as long as it is compliant with integration into the “add-on slot” within the phone. *Id.* at 4:8-22. The stripe on the card need not be visible, such as where “circuitry may be included within electronic transaction card **106** to produce the time-varying magnetic field and no visible indication may be present on an external face of electronic transaction card **104**.” *Id.* at 3:11-15. Indeed, “in some embodiments of the present invention, transactions may utilize smartcard interfaces on electronic transaction cards in addition to, or in lieu of, stripes that emit time-varying magnetic fields.” *Id.* at 3:47-51.

Further, the electronic transaction card may include a “‘contactless’ interface ... that communicates using electronic or magnetic fields, infrared (IR) light, or other suitable communications mechanism.” *Id.* at 4:17-22. Thus, rather than requiring a physical swipe, “[i]n these embodiments, electronic transaction card **220** may be programmed to emit one or more time-varying magnetic fields to emulate the swiping of a credit card or stored value card.” *Id.* at 4:64-67.

The electronic transaction card of the '423 patent can also be combined with a memory card, including a processing element that can cause circuitry to produce time-varying magnetic fields, representing financial data, and where transaction data may be programmed into the memory. *Id.* at 11:49-12:4; 16:9-14 (claim 1). The combination electronic transaction-memory card can include either magnetic (stripe) circuitry, or smartcard circuitry. *Id.* at 11:49-54, 11:58-12:4; *see also Id.* at 16:30-31 (claim 9).

Additionally, rather than have an electronic transaction card “programmed to have one number, similar to how a credit card uses the same number repeatedly,” an electronic transaction card “may be programmed to use a different number for each transaction.” Ex. 1001, 5:2-7. “These numbers are referred to herein as “single transaction account numbers” or “STANs.” *Id.* at 5:7-8. According to the '423 patent, software to generate a STAN may be incorporated into a mobile phone. *Id.* at 11:25-29, 11:64-12:1, 12:15-19. Thus, the '423 patent teaches circuitry to produce a STAN. *Id.* at 16:10-14 (claim 1); 16:33-34 (claim 9); 16:51-57 (claim 15).

III. CLAIM CONSTRUCTION

Petitioners do not request construction of any claim terms from the '423 patent. Pet. at 23. Patent Owner does not believe that any claim terms require express construction to deny institution. Accordingly, the claims should be given

their ordinary and customary meaning in light of the specification and prosecution history, as understood by a person of ordinary skill in the art. 37 C.F.R. § 100(b); *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005).

IV. PERSON OF ORDINARY SKILL IN THE ART

For the purposes of these preliminary proceedings, Patent Owner does not dispute the level of skill for a person of ordinary skill in the art (“POSITA”), other than Petitioner’s assertion that a POSITA must have specific experience in “the field of electronic devices used for transactions” rather than electronic devices more generally. Pet. at 23. Patent Owner does not waive, however, any argument regarding the proper level of skill, and further reserves the right to later advance additional arguments.

V. THE PETITION DOES NOT ESTABLISH A REASONABLE LIKELIHOOD THAT THE APPLIED REFERENCES RENDER THE CHALLENGED CLAIMS UNPATENTABLE

The Petition does not establish a reasonable likelihood that Doughty in view of Bursch (Ground 1) or Doughty in view of Bursch in further view of Fox (Ground 2) discloses all of the limitations of any ’423 patent claim, or that a POSITA would be motivated to combine the references. The Board should not institute trial for many reasons including, but not limited to:

A. Doughty does not disclose “circuitry to produce a time-varying magnetic field that mimics a swipe of a magnetic card.” *See* Section V.A.3.a.i.

B. Doughty does not enable the claimed “mobile phone.” *See* Section V.A.3.a.ii.

C. The Petition does not establish a reasonable likelihood of establishing that a POSITA would have modified Doughty with Bursch. *See* Section V.A.3.a.iii.

D. The Petition does not establish a reasonable likelihood of establishing that a POSITA would have modified Doughty with Fox. *See* Section V.B.2.

The Board should not institute trial on either Ground.

A. The Petition Does Not Establish a Reasonable Likelihood that Doughty in View of Bursch Renders Unpatentable Claims 1-5 or 8-18 (Ground 1)

The Petition has not demonstrated a reasonable likelihood of success that Petitioner will prevail on any claim challenged in Ground 1 for the following reasons, summarized in section V and described in detail below.

1. Overview of Doughty

Petitioners primarily rely on U.S. Patent App. Pub. 2004/0133787 to Doughty, et al., dated July 8, 2004 and entitled “System, Method and Apparatus for Enabling, Transactions Using A Biometrically Enabled Programmable Magnetic Stripe” (Ex. 1005, “Doughty”). Unlike the ’423 patent claims, Doughty does not seek to replace consumers’ credit cards with mobile phones. Rather, Doughty purports to provide for an improved magnetic stripe credit card with a programmable stripe and biometric security. Ex. 1005, [0008] (“The present

invention provides a system, method and apparatus for a practical and secure card or device that has the advantages of a smart card and will interface with existing world-wide magnetic stripe readers without the use of adapters or bridges.”).

Doughty is directed to “authentication and processing of commercial and security related transactions and, more particularly, to a system, method and apparatus for enabling transactions using biometrically enabled programmable magnetic stripes.” Ex. 1005, [0002]. As Doughty explains, “security of current magnetic stripe cards is suspect due to the ease of card theft and ‘skimming’ of card data for creating and using fake cards.” *Id.* at [0003]. Personal financial information is “typically stored in three data tracks within the magnetic stripe” of the credit card, which “are easily created, read, and damaged.” *Id.* As a result, security for these types of cards “is low and renders their use in applications involving highly sensitive information suspect.” *Id.*

Doughty further explains that smart cards, which “primarily rely on an integrated circuit,” are “a viable way to improve the effectiveness and security of a given card or device.” *Id.* at [0004]. But smart cards require a “special reader” and are not compatible with traditional magnetic stripe card readers. *Id.* As a result, adoption of smart cards without a magnetic stripe “has been slow.” *Id.* Thus, Doughty identified a need for a “practical and secure card”—one that was both usable with “magnetic stripe readers,” but also included “proper authentication ...

to reduce the risk to the device holder in the event of loss or fraudulent capture
....” *Id.* at [0007].

Doughty purports to solve this problem with (1) a programmable magnetic stripe, and (2) on-card biometric authentication. *Id.* at [0008]-[0009], [0039]; Ex. 2031, ¶ 49. Doughty’s solution and primary teaching was to add biometric authentication to card transactions. Ex. 2031, ¶ 50. Doughty described that its solution “provides stringent protections for magnetic stripe cards and devices through the use of on-card/device biometric authentication of the user and programmable magnetic stripes such that the data within the tracks of the stripe can be spatially manipulated and managed by the logic within the processor/controller of the card or device.” Ex. 1005, [0009]. The programmable stripe “allows magnetic stripe data to be modified or completely erased for protection,” and the on-card biometric authentication allows features to be disabled until the owner of the card enables them,” thus ensuring that the card “cannot be used if it is lost or stolen.” *Id.*

Doughty’s invention, which seeks to provide a secure card that “will interface with existing world-wide magnetic stripe readers without the use of adapters or bridges” (*id.* at [0008]), takes the same form as a traditional magnetic stripe card. *Id.* at [0048] (“shown in the form of a credit or debit card”). Likewise, Doughty explains that its invention is typically mounted on a substrate that “will be

a semi-flexible material such as plastic, or a laminate material,” where [t]he substrate can then be integrated into a card, such as an access card, a credit card, a debit card, an identification card, a mini-card, a security card, a stored value card and a vendor-specific card, etc.” *Id.* at [0046]. When interacting with magnetic readers, the system of Doughty requires that secure card to be swiped through a magnetic reader to effectuate a transaction. *Id.* at [0051]-[0052] (noting repeatedly that “the card is swiped through the reader”); Ex. 2031 ¶ 51.² Doughty also

² While Doughty does contain references to “contactless” operations, those aspects of Doughty are irrelevant here. First, Petitioners do not rely on those portions of Doughty, instead relying on portions of Doughty that require a “swipe through the reader.” *See* Pet. at 33-35 (limitation [1.a]). Second, those aspects of Doughty relate to an alternative system reliant on RF communications and entirely separate from the time-varying magnetic field claimed in the ’423 patent. *See, e.g.*, Ex. 1005, [0056]-[0061] (“contactless” embodiments involving “RF field”); [0084]-[0085] (“contactless” embodiment involving card “placed into the RF field.”); Ex. 2031 ¶ 51. There is no teaching of Doughty that a transaction can be effectuated in a contactless manner that produces a time-varying magnetic field claimed in the ’423 patent. Ex. 2031 ¶ 51. Doughty requires contact (a card swipe) for its disclosures with respect to the time-varying magnetic field; otherwise, there would be no need

includes a laundry list of various devices that could allegedly house its invention, without explaining how it would be integrated or used, including “a travel credential, such as a passport, an immigration card and a visa, etc., ... a personal communication device, such as a personal data assistant (PDA), a telecommunications device, a pager, a computer and an electronic mail transceiver, etc., ... a personal device/belonging, such as a watch, a jewelry, a key ring, a tag and eye glasses, etc.” *Id.* at [0046]; *see also* Ex. 2031, ¶ 52. Despite identifying a variety of specific devices, Doughty does not explicitly identify a mobile phone. Ex. 2031, ¶ 52.

2. Overview of Bursch

U.S. Patent No. 7,917,444 to Bursch (Ex. 1010 or “Bursch”) is entitled “Secure Single-Use Transaction Numbers,” and is directed to the generation, uses, and authentication of “single-use transaction numbers.” Ex. 1010, 1:6-9; 2:22-44.

According to Bursch, “business account numbers comprise a routing number and account number,” where the “routing number identifies the institution or organization that is responsible for maintaining the account associated with the authorized user of the business account number.” *Id.* at 1:25-29. Bursch notes that

for Doughty’s invention to include a programmable magnetic stripe itself if contactless RF were pervasive. Ex. 1005, [0007]-[0009]; Ex. 2031, ¶ 51.

“[t]oo often the business account number is lost or stolen and then used by an unauthorized person to make purchases that get billed to the authorized user.” *Id.* at 49-51. In particular, “fraud and privacy concerns” as related to “online purchases” created the need for additional “security surrounding the use of business account numbers.” *Id.* at 1:52-59, 2:16-18.

Thus, Bursch attempts to address this need for additional security, especially as related to online purchases, through the use of “single-use transaction numbers.” Ex. 2031, ¶ 55. The transaction numbers themselves “contain a routing number, an account number, and an authenticating number.” Ex. 1010 at 3:16-17; 6:11-12; 7:21-30. According to Bursch, “an issuing institution issues a transaction number generator to its customers instead of a business account number.” *Id.* at 3:38-40. The transaction number generator can be implemented through software on a device, such as with SofToken. *Id.* at 7:25-27. “The issuing financial institution maintains a copy of the transaction number generator,” also known as a “transaction number validator,” which maintains the same sequence of transaction numbers that the consumer’s transaction number generator will generate. *Id.* at 3:52-59. The transaction number generator and the transaction number validator are two different devices, where “the issued transaction number generator” held by the user “could be a handheld device and the transaction number validator”

possessed by the issuing institution “could be implemented in software running on a personal computer.” *Id.* at 3:59-64.

To complete a transaction using the invention of Bursch, a user generates a transaction number and provides it to a merchant, who provides it to the issuing institution for validation. *Id.* at 4:1-49; FIG. 1. Alternatively, a user can generate a transaction number on their personal computer and send it to a merchant over the internet to make an online purchase, and then the merchant would validate the number with the issuing institution, after which (if successful), the merchant can complete the transaction. *Id.* at 7:31-49; FIG. 2.

Bursch recognizes that an institution maintaining a list of expected numbers may cause false rejections, for example, if a user generates a number and discards it, or if a user makes numerous purchases in quick succession. *Id.* at 4:50-5:27; Ex. 2031, ¶ 57.

3. The Petition Does Not Establish that Doughty in View of Bursch Discloses All Limitations of the Challenged Claims³

a. Claim 1

- i. Doughty alone or in combination with skill in the art does not disclose “circuitry to produce a time-varying magnetic field that mimics a swipe of a magnetic card”**

The Petition has not established a reasonable likelihood that Doughty alone or in combination with skill in the art discloses the limitation, common to all

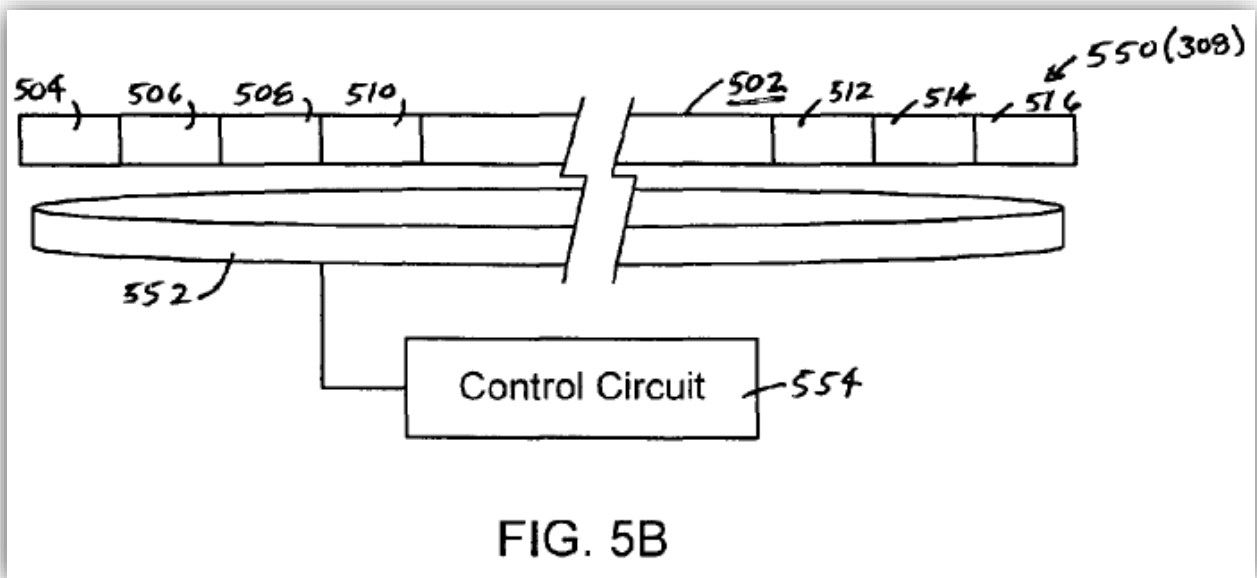
³ Petitioners extensively describe that, during the prosecution of a family member of the '423 patent, U.S. Patent No. 11,270,174 (“the '174 patent,” Ex. 1006), the examiner issued a non-final rejection of the '174 patent’s claims over a continuation of Doughty, U.S. Patent App. Pub. 2011/0240748 (“Doughty-CON,” Ex. 1004). *See* Pet. at 10-14; *see also* Ex. 1007, 1451-57 ('174 patent file history). Petitioners make no direct argument that the determination on Doughty-CON in the prosecution of the '174 patent—nor could they. Not only did the patent owner overcome the rejection, the patent owner’s silence regarding the substance of the rejection is not determinative. *See, e.g., Astra Aktiebolag v. Andrx Pharms., Inc.*, 222 F. Supp. 2d 423, 578 (S.D.N.Y. 2002) (holding that silence in response to adverse determination during prosecution is not conclusive), *aff’d sub nom. In re Omeprazole Pat. Litig.*, 84 F. App’x 76 (Fed. Cir. 2003). Indeed, “positions are often

challenged claims, “circuitry to produce a time-varying magnetic field that *mimics a swipe of a magnetic card*.” See Pet. at 33-35 (emphasis added).

The invention of Doughty does not *mimic* a card swipe; rather, Doughty *requires* a card swipe. Ex. 2031, ¶ 59. Doughty’s programmable magnetic stripe, which Doughty also calls a magnetic field generator,⁴ operates by generating a magnetic field during a card swipe. Ex. 2031, ¶ 60. The programmable magnetic stripe creates either “a spatial magnetic signal or a time-varying magnetic signal.” Ex. 1005, [0041]. Figure 5B of Doughty illustrates a programmable magnetic stripe 550 (308) for generating a time-varying magnetic field. *Id.* at [0020], [0051].

taken during patent prosecution out of convenience and expedience, and, therefore, such positions should not be given conclusive effect.” *Id.* (citing *Quad Envtl. Techs. v. Union Sanitary Dist.*, 946 F.2d 870, 873–74 (Fed.Cir.1991)).

⁴ See, e.g., Ex. 1005, [0053] (“programmable magnetic stripe 308 (magnetic field generator; see also 502 Figs. 5A and 5B)”); [0055] (“[T]he device outputs may include a magnetic field generator 308 (programmable magnetic stripe).”)



As Doughty explains, the programmable magnetic stripe 550 (308) operates to generate a time-varying magnetic signal while the card is physically swiped through a reader. The programmable magnetic stripe 550 (308) includes: a magnetic stripe 502 having one or more sets of magnetic data cells 504-516; a single inductive coil 552; and a control circuit 554. *Id.* at [0051]. “The long inductive coil 552 is mounted immediately beneath the entire length of the magnetic stripe 502 and its corresponding binary magnetic data cells 504-516 such that a time-varying signal can be transmitted to the heads of the magnetic card reader *as the card is swiped through the reader.*” *Id.* (emphasis added). “The data rate is determined based on the minimum and maximum swipe speeds that standard readers can accommodate. In other words, the single inductive coil 552 is long enough for it to be in the *physical proximity of the card reader* heads for the

entire time period required to transmit the time-varying signal from the card to the card reader.” *Id.*

Doughty describes that the individual data cells 504-516 are “normally empty of data,” e.g., for security purposes. *Id.* at [0052]. Transmission of the ***time-varying*** data may only begin upon “valid biometric authentication of the card user, followed by a detection of the card that ***it is in the presence of the reader head and the reader*** 330 (FIG. 3) has recognized ***the start sentinel on the card.***” *Id.* (emphasis added) “***Once the card is alerted that it is being swiped*** through the reader 330 (FIG. 3), it begins transmission of the emulated time-varying data from the device processor to the inductive coils 552, thereby generating an exact emulation and transmission to the reader 330 (FIG. 3) of the data that would have been produced by swiping the card through the reader 330 (FIG. 3) with *spatially varying* data included in the individual data cells 504-516.” *Id.* (emphasis added).

A POSITA would understand that Doughty’s programmable magnetic stripe only emulates time-varying magnetic data during a physical card swipe and does not, itself, mimic or emulate a swipe. Ex. 2031, ¶ 63. Where there is an actual swipe, there is no mimicking. Ex. 2031, ¶ 63. By its plain and ordinary meaning, mimicking involves simulating or imitating. Ex. 2031, ¶ 63; *see also* Ex. 2033 (1997 dictionary definition of “mimic” as “[t]o copy or imitate closely...” and “[t]o resemble closely; simulate”). Doughty does not contemplate simulating or

imitating a swipe. Ex. 2031, ¶ 63. In stark contrast, Doughty relies on the time and proximity of an actual, physical swipe. *Id.*

At most, Doughty discloses *data* emulation, not *swipe* emulation, and uses the time varying field to protect the data before, during, and after the physical swipe, which is part of the primary teaching of security and authentication for Doughty. Ex. 2031, ¶ 64. Doughty describes emulating card data, including “binary data to enable a transaction, such as a user name, user number, device expiration date, transaction approval/denial, etc.” using a time-varying magnetic field. Ex. 1005, [0041]. This is further evidenced throughout Doughty’s disclosure:

- Ex. 1005, [0010] (“The magnetic field generator can create a spatial magnetic signal using a magnetic stripe and one or more induction coils, or create a time-varying magnetic signal *for emulating data obtained from swiping a magnetic stripe card* through a magnetic card reader. As a result, the magnetic field generator emulates a programmable magnetic stripe.”).
- *Id. at* [0041] (“The magnetic field generator **308** emulates a programmable magnetic stripe by either creating a spatial magnetic signal or a time-varying magnetic signal *for emulating data obtained from swiping a magnetic stripe card* through a magnetic card reader (See FIG. 5B).”).

- *Id. at* [0051] (“Now referring to FIG. 5B, a block diagram of a programmable magnetic stripe **550** (**308** FIG. 3) using a single induction coil **552** for *sending emulated time-varying magnetic stripe data* to a magnetic card reader By establishing the configuration in this manner, the inductive coil **552** can be pulsed with varying currents and current directions so that *the time-varying data stream of a card being swiped through the reader is emulated, thus providing the same magnetic data stream to the reader heads of the magnetic stripe reader as would be seen if a card with binary data in multiple spatially distributed data cells 504-516 in the magnetic stripe 502 were swiped through the reader. This magnetic signal will, therefore, emulate the data that would be generated by the swipe of a magnetic stripe card* with the desired information embedded in the individual data cells **504-516** of the stripe **502**.”).

Petitioners improperly conflate Doughty’s data emulation with swipe mimicking. Petitioners point to the portions of Doughty quoted above, discussing data emulation, as evidence of mimicking a swipe. Pet. at 33. A POSITA would understand, however, that card data emulation is not enough to mimic a swipe, rather, a swipe involves additional aspects, such as: clocking zeros, start sentinel character, data characters, end sentinel character, and a longitudinal redundancy

check character. *See* Ex. 2031, ¶ 65; Ex. 2032 (Silicon Labs AN148 Magnetic Stripe Reader), § 2.2. Doughty only addresses the data characters from a security perspective. Ex. 2031, ¶ 65. Thus, the exchange that occurs between a card and a reader during a swipe involves more than transmission of card data. *Id.* Indeed, though ignored by Petitioners, Doughty acknowledges the difference between a swipe and emulated data: “All such transmission of emulated card data is contingent upon valid biometric authentication of the card user, followed by detection of the card that it is in the presence of the reader head and the reader 330 (FIG. 3) *has recognized the start sentinel on the card* so that the reader 330 (FIG. 3) is *ready to accept the stream of emulated data* provided by the device processor.” Ex. 1005, [0052] (emphasis added); Ex. 2031, ¶ 65.

In contrast to Doughty, the ’423 patent claims “a time-varying magnetic field that mimics a swipe” and that is not dependent upon biometric authentication. Ex. 1001, 16:10-11, 30-31, 48-49. As explained in the ’423 patent specification, the “stripe” is not a visible magnetic stripe on the face of a card, like that of Doughty. *Id.* at 3:11-12 (“stripe 106 may not be visible”); 3:16-24. Rather, “circuitry may be included within electronic transaction card 106 to produce the time-varying magnetic field and no visible indication may be present on an external face of electronic transaction card 104.” *Id.* at 3:12-15.

Indeed, the '423 specification distinguishes between embodiments that produce a time-varying magnetic field by *mimicking* a card swipe—and thus do not require physical swiping—and embodiments that instead rely on a physical swipe operation to produce a time-varying magnetic field. *Compare* Ex. 1001, 3:11-15 (“circuitry may be included within electronic transaction card 106 to produce the time-varying magnetic field and no visible indication may be present on an external face of electronic transaction card 104”) *with id.* at 8:8-11 (referring to FIG. 4, “[d]uring the swiping operation, electronic transaction card 420 produces one or more time-varying magnetic fields to emulate the swiping of a magnetic card.”); Ex. 2031, ¶ 67.

Because Doughty discloses an utterly different process (emulating data from a swipe during a swipe after successful biometric authentication) from that claimed in the '423 patent (mimicking the entirety of a swipe without performing a swipe), Doughty does not disclose “a time-varying magnetic field that mimics a swipe.” *Id.* at 68.

ii. Doughty alone or in combination with skill in the art does not enable a “mobile phone”

The Petition has not established a reasonable likelihood that Doughty alone or in combination with skill in the art enables “a mobile phone comprising...” *See* Pet. at 30-33.

In an obviousness analysis, the reference relied upon “must necessarily enable the relied-upon portion of its own disclosure—the same standard applied to anticipatory references.” *See, e.g., Raytheon Techs. Corp. v. Gen. Elec. Co.*, 993 F.3d 1374, 1381 (Fed. Cir. 2021). Where Petitioners “rel[y] solely” on a particular reference’s disclosure and that disclosure “fails to enable a skilled artisan to make the challenged invention,” that reference does not support an obviousness finding. *Id.* “Undue experimentation” may involve an examination of the following set of factors: “(1) the quantity of experimentation; (2) the amount of direction or guidance present; (3) the presence or absence of working examples; (4) the nature of the invention; (5) the state of the prior art; (6) the relative skill of those in the art; (7) the predictability or unpredictability of the art; and (8) the breadth of the claims.” *Impax Lab ’ys, Inc. v. Aventis Pharms., Inc.*, 545 F.3d 1312, 1314-15 (Fed. Cir. 2008) (citing *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988)). However, “all of the factors need not be reviewed when determining whether a disclosure is enabling,” as the factors are “illustrative, not mandatory,” and “[w]hat is relevant depends on the facts.” *Enzo Biochem, Inc. v. Calgene, Inc.*, 188 F.3d 1362, 1371 (Fed. Cir. 1999) (quoting *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1213 (Fed. Cir. 1991)).

There is no enablement where “[t]here is no disclosure that the authors had achieved a [claimed element] and the record does not indicate that it would have

been routine to do so.” *Apple v. Int’l Trade Comm’n*, 725 F.3d 1356, 1364 (Fed. Cir. 2013); *see also, e.g., Forest Lab’ys. Inc. v. Ivax Pharms., Inc.*, 501 F.3d 1263, 1268 (Fed. Cir 2007) (no enablement where reference “does not state how to obtain” a result). Indeed, “[i]t is insufficient to name or describe the desired subject matter, if it cannot be produced without undue experimentation.” *Elan Pharms., Inc. v. Mayo Found. for Med. Educ. & Rsch.*, 346 F.3d 1051, 1055 (Fed. Cir. 2003).

All claims of the ’423 patent recite a mobile phone. *See* Ex. 1001, 16:9, 16:29, 16:47 (all independent claims including limitation “a mobile phone comprising...”). Indeed, it was the ’423 patent inventors’ goal to create a mechanism for completing consumer transactions using only the consumers’ mobile phone. Ex. 2031, ¶ 70. They set out to invent a mechanism for consumers to use their phones, instead of cash, checks, or credit cards, to complete point-of-sale transactions. *Id.* The ’423 patent claims are directed to circuitry for high-performance communications between mobile devices and point-of-sale payment terminals to facilitate mobile contactless payments—a technology that is today commonly referred to as “tap to” functionality. *See, e.g.,* Ex. 1001, 16:9-14; Ex. 2031, ¶ 71.

Despite Petitioner’s assertion, Doughty’s disclosure of a “telecommunications device” would not have enabled a person of ordinary skill in

the art to make the claimed invention without undue experimentation. *See* Pet. at 30-33, 52, 61; Ex. 2031, ¶¶ 72-73. Doughty discloses a swipeable card with biometric authentication. *See, e.g.*, Ex. 1005, [009], [0051], [0052]; Ex. 2031 ¶ 74.

But, at most, Doughty discloses the mere idea—without explanation—of incorporating a swipeable card with biometric authentication into a variety of diverse devices, including “jewelry,” “eye glasses,” or “a passport.”⁵ Ex. 1005, [0046]; Ex 2031, ¶ 74. Included in Doughty’s list of ideas is a “telecommunications device,” but it does not explicitly identify a mobile phone, even though other devices such as pagers are listed. Ex. 1005, [0046]; Ex 2031, ¶ 75. However, even assuming that a person of skill in the art would understand a telecommunications device to include a mobile phone, nothing in Doughty explains how to achieve the integration of its invention, which requires biometric

⁵ In fact, a POSITA would understand these devices to function, if at all, only with Doughty’s “contactless” embodiments that function with an RF-field, and not the time-varying magnetic field, as claimed by the ’423 patent. Ex. 1005, [0056]-[0061] (“contactless” embodiments involving “RF field”); [0084]-[0085] (“contactless” embodiment involving card “placed into the RF field.”); Ex. 2031 ¶ 74.

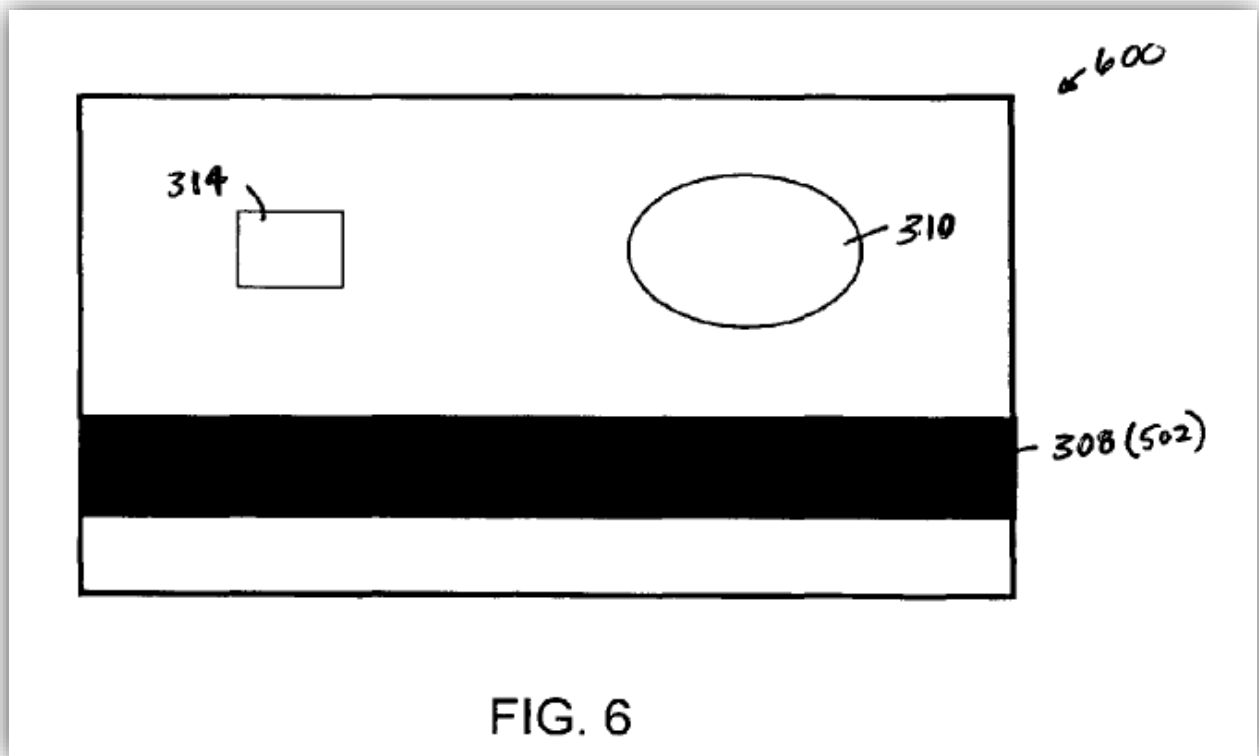
authentication and a physical swipe, into a mobile phone such that it would be workable and, most important, swipeless. Ex 2031, ¶ 75.

A goal of the invention of Doughty is to “interface with existing world-wide magnetic stripe readers without the use of adapters or bridges.” *Id.* at [0008]. As acknowledged by Doughty, those commonplace magnetic stripe readers require a device “the size of a credit card so that the [device] can be swiped through the magnetic stripe reader.” *Id.* at [0005]. Indeed, the requirement to swipe through the reader is the reason Doughty can avoid the “adapters or bridges” required by smart cards while providing security, the main focus of Doughty. *Id.*; Ex. 2031, ¶ 76.

Rather than use an adapter, Doughty teaches a solution that incorporates security features into the format of a substrate that can be swiped through the reader, and where the functionality of Doughty *requires a swipe* to trigger certain steps of its process. *See id.* at [0051] (“a time-varying signal can be transmitted to the heads of the magnetic card reader *as the card is swiped through the reader*”); *id.* (“The data rate is determined based on the minimum and maximum swipe speeds that standard readers can accommodate.”); *Id.* at [0052] (“*Once the card is alerted that it is being swiped through the reader 330* (FIG. 3), it begins transmission of the emulated time-varying data from the device processor....”); *see also id.* at [0008] (“The present invention provides ... a practical and secure card or device that has the advantages of a smart card and will interface with

existing world-wide magnetic stripe readers without the use of adapters or bridges”); Ex. 2031, ¶ 77.

Doughty discloses extensive detail to enable its invention in a credit card shaped format. For example, Doughty describes to a POSITA how to “transmit the time-varying signal from the card to the card reader” during the course of a swipe. *id.* at [0051]; *see also, e.g., id.* at [0048]-[0049]; [0052]; [0064]-[0068]; Figs. 4A, 4B, 6, 11; Ex. 2031, ¶ 79. Throughout its disclosure, Doughty consistently discloses and enables a thin, swipeable substrate, such as the programmable magnetic card 600 depicted in Figure 6.



Ex. 1005 at Fig. 6. Programmable magnetic card 600 includes on-card biometrics sensor 310 on-card control processor 314, and critically, programmable magnetic stripe 308 (magnetic field generator 502). *Id.* at [0053]; Ex. 2031, ¶ 79.

Doughty does not explain at all how its programmable magnetic stripe 308(502) can function if it is integrated into a device that cannot be swiped through a magnetic card reader created to receive a credit card, such as “jewelry,” “eye glasses,” or a “telecommunications device.” Ex. 2031, ¶ 80. Nor does Doughty explain how to incorporate the on-card biometrics sensor into such devices. *Id.* As to these formats, Doughty does no more than name an idea, without having achieved it, and without explaining how to achieve the result—only suggesting that the swipeable substrate as disclosed is somehow used. Ex. 1005, [0046]; Ex. 2031, ¶ 81. This is not an enabling disclosure. *Apple*, 725 F.3d at 1364; *Forest Lab ’ys. Inc.*, 501 F.3d at 1268; *Elan Pharms.*, 346 F.3d at 1055. “Tossing out the mere germ of an idea does not constitute enabling disclosure.” *Enzo Biochem, Inc.*, 188 F.3d at 1374.

Instead, Doughty leaves it to a person of skill in the art to experiment and determine on their own how to incorporate the invention into a non-card-shaped device. Ex. 2031, ¶ 81. As relevant here, a person of skill in the art would be required to figure out how to swipe a mobile phone (of 2005 vintage) through a credit card reader after performing biometric authentication based on the same

substrate. *Id.* at ¶¶ 81-82. Alternatively, a person of skill in the art would have to determine how to recreate the invention of Doughty to achieve the same goals without using a physical swipe to activate the magnetic field generator or to trigger the transfer of data from the user device to the reader. *Id.* Additionally, the experimentation would have to be performed across multiple mobile phone devices as the shape and functionally varied widely in 2004-2005 timeframe. *Id.* Full swipe emulation experimentation would involve determining how to remove all physical contact with the reader, something not contemplated by Doughty at all, and would involve overcoming many obstacles based on incompatible protocols, differences in device shielding and the impact of shielding on wireless data transmission, differences in position of the magnetic stripe reader within the point-of-sale terminal, and differences in electronics and software making up the magnetic stripe reader of the point-of-sale terminal. *Id.* at ¶ 83. The experimentation would involve phone form factors, useability, comfort, durability, and compatibility with a wide range of card readers due to their physical differences of the swipe mechanism. *Id.* at ¶ 82.

The level of experimentation required to incorporate Doughty's invention into a mobile phone easily meets the "undue experimentation" standard. The first three factors, "(1) the quantity of experimentation; (2) the amount of direction or guidance present; [and] (3) the presence or absence of working examples,"

strongly indicate a need for undue experimentation. *Impax Lab 'ys, Inc.*, 545 F.3d at 1314. There is no “direction or guidance present” as to how to force the invention of Doughty into a form that is not compatible with a conventional magnetic card reader, including no explanation in the text of the specification and no figures that illustrate non-card form factors. Moreover, there is a complete absence of working examples. In effect, a person of skill in the art would have to create an entirely new invention that worked in a different manner from that taught by Doughty. Ex. 2031, ¶ 81. These factors together weigh in favor of non-enablement. Where there is “virtually no guidance, direction, or working examples were provided for practicing the invention in” a particular form, and where “the teachings set forth in the specifications provide no more than a ‘plan’ or ‘invitation’ for those of skill in the art to experiment practicing [in that form]; they do not provide sufficient guidance or specificity as to how to execute that plan” and are not enabled. *Enzo Biochem, Inc.*, 188 F.3d at 1374.

Similarly, the nature of the invention indicates the need for undue experimentation. As explained, the goal of the Doughty invention is to create a secure card that would function with conventional magnetic card readers. Ex. 1005, [0007]-[0008]. To modify the invention of Doughty to work without or separate from a conventional magnetic card reader would be contrary to the nature of the invention and would require extensive experimentation. Ex. 2031, ¶ 81. The

remainder of the factors are at best neutral, but do not demonstrate that a person of skill in the art could arrive at the invention of Doughty within a mobile phone without undue experimentation.

Therefore, Doughty cannot render obvious the claims of the '423 patent, because, regardless of whether it discloses all other limitations of the '423 patent's claims (it does not), it does not disclose an enabled system that functions in a mobile phone.

Nor does skill in the art fill in the gap. Petitioners argue that “[a] POSITA would have understood that a telecommunications device used as a “personal communication device” is a mobile phone (and thus a mobile device), and at minimum would have found it obvious to implement the user device 302 in a mobile phone to advantageously take advantage of a mobile device that a user carries around (including to locations where transactions would occur), reduced risk of theft or loss, the ability to access information on the smartcard using the phone, and the ability to update information on the smartcard using the phone functionality.” Pet. at 30-31. Petitioners’ expert similarly does not engage with the lack of enablement or level of experimentation required to “implement the user device 302 in a mobile phone,” stating only exactly the argument made in the Petition. Ex. 1003, ¶ 92. But whether a POSITA would have understood a telecommunications device to be a mobile phone does not explain how a person of

skill in the art could have achieved the invention of Doughty in any telecommunications device that does not take the form of a credit card. In fact, Petitioners' expert does not explain how a POSITA would have understood to undertake this implementation without extensive experimentation, nor does he explain how a complete swipe would be emulated, and not just the data for security purposes, as disclosed by Doughty. Ex. 2031, ¶ 84.

Petitioners have not demonstrated a reasonable likelihood that Doughty alone or combined with skill in the art enables its use in a mobile phone.

iii. The Petition Does Not Establish that a POSITA Would Have Either a Reason to Combine Doughty and Bursch or an Expectation of Success from the Combination

To support an obviousness challenge, “[t]he petitioner must . . . articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). The petitioner must demonstrate both that a POSITA (1) would have had a reason to combine the asserted references, and (2) would have had a reasonable expectation of success from doing so. *Honeywell Int’l Inc. v. Mexichem Amanco Holding S.A. DE C.V.*, 865 F.3d 1348, 1355 (Fed. Cir. 2017) (quoting *Redline Detection, LLC v. Star Envirotech, Inc.*, 811 F.3d 435, 449 (Fed. Cir. 2015)).

Here, Petitioner cannot articulate why or how a POSITA would have modified Doughty with Bursch, including why a POSITA would have had motivation to combine the references, nor why a POSITA would have had a reasonable expectation of success. Specifically, the Petition contends that “[a] POSITA would have found it straightforward to use Bursch’s single-use transaction numbers as part of Doughty’s transaction data, such as a user number.” Pet. at 29. But Petitioner fails to address several fundamental, contradictory differences between the references that would discourage a POSITA from making the proposed combination. The Petition’s failure to address these differences shows that the Petition has relied on impermissible hindsight, using the ’423 patent claims as a roadmap, instead of demonstrating how or why a POSITA would have combined Doughty and Bursch. *See Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1069 (Fed. Cir. 2018) (finding that a reference’s “statements regarding preferences are relevant to a finding regarding whether a skilled artisan would be motivated to combine that reference with another reference” and must be considered to avoid hindsight bias).

In particular, Petitioner fails to acknowledge that Doughty and Bursch represent two different, incompatible technologies. Section V.A.1-2. Doughty teaches a technology that relies on biometric authentication to protect an account number and a magnetic swipe to perform the transaction. Ex. 1005, [0009]; Section

V.A.1; Ex. 2031, ¶ 87. Therefore, the account information remains secure within the Doughty disclosure for use as a credit card. Ex. 2031, ¶ 87. Bursch teaches generation of transaction numbers for security that are provided directly to the merchant by the user, either by typing into a website or by physically providing it to the merchant. *Id.* A POSITA would see no need to combine these two technologies, except in hindsight, as each has a security mechanism for protecting a user's account. *Id.* Furthermore, the requirements of computation and communication required in Bursch are not present in Doughty; Petitioners and their expert are silent on how such requirements could be met and integration could occur in the credit card substrate of Doughty when the Bursch disclosure requires at least a handheld device such as a PDA. Ex. 1010, 7:21-30; 7:50-54; Ex. 2031, ¶ 87. While Petitioners' expert opines that a POSITA would be motivated to combine the two references because Bursch discloses that its transaction number generator maybe hosted in a "handheld device," including a "PDA or telephone," Doughty does not disclose an enabled mobile device. Ex. 1003, ¶ 87; *see* Section V.A.1. Furthermore, there are no disclosures in the two references on how the secure card substrate of Doughty would be integrated with and communicate safely and securely with any software including a "transaction number generator" of the "handheld device" or PDA. Because of this lack of disclosure and the incompatibilities in the two inventions, the integration of the two technologies

would have no expectation of success. Ex. 2031, ¶ 88. Therefore, a POSITA would not be motivated to combine these two references. *Id.*

b. Claims 2-5 and 8

Claims 2 through 5 and 8 are dependent claims that depend from claim 1. Ex. 1001, 16:15-21, 16:27-39. Because Doughty does not disclose claim 1, it cannot disclose the more specific claims 2-5 and 8. *See, e.g., Ortho-McNeil Pharm., Inc. v. Mylan Lab 'ys, Inc.*, 520 F.3d 1358, 1365 (Fed. Cir. 2008) (“[D]ependent claims are nonobvious if the independent claims from which they depend are nonobvious.” (quoting *In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992))).

c. Claims 9 & 15

i. Doughty and Bursch lack the same elements of claims 9 and 15 as related to claim 1

Independent claims 9 and 15 contain the same limitations from claim 1 discussed above—all of which Doughty and/or Bursch lack. *See* Ex. 1001, 16:10-11, 30-31 & 48-49 (claims 1, 9, and 15 reciting “circuitry to produce a time-varying magnetic field that mimics the swipe of a magnetic card”); *Id.* at 16:9, 29, & 47 (claims 1, 9, and 15 reciting “A mobile phone comprising...”); *Id.* at 16:12-14, 32-33, 50-57 (claims 1, 9, and 15 reciting one or more “single transaction account number[s]”). Therefore, for the same reasons described in Section V.A.2.a, Doughty in view of Bursh does not disclose claim 9.

d. Claims 10-14 & 16-18

Claims 10 through 14 and 16 through 18 are dependent claims that depend from claim 9 or claim 15. Ex. 1001, 16:48-53. Because Doughty in view of Busrch does not disclose either claim 9 or 15, they cannot disclose the more specific claims 10-14 or 16-18. *See, e.g., Ortho-McNeil Pharm., Inc. v. Mylan Lab 'ys, Inc.*, 520 F.3d 1358, 1365 (Fed. Cir. 2008) (“[D]ependent claims are nonobvious if the independent claims from which they depend are nonobvious.” (quoting *In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992))).

B. The Petition Does Not Establish a Reasonable Likelihood that Doughty in View of Bursch in Further View of Fox Renders Unpatentable Claims 1-5 or 8-18 (Ground 2)

The Petition has not demonstrated a reasonable likelihood of success that Petitioner will prevail on any claim challenged in Ground 2 for the following reasons, summarized in section V and described in detail below. Ground 2—Doughty in view Bursch in further view of Fox—does nothing to remedy the shortcomings of Ground 1.

1. Overview of Fox

U.S. Patent No. 5,943,624 to Fox (Ex. 1009 or “Fox”) is entitled “Contactless Smartcard for Use in Cellular Telephone.” The invention of Fox incorporates electronics associated with a smartcard into the housing of a cellular telephone. Ex. 1009 at Abstract. Unlike Doughty and the ’423 patent, Fox does not

contemplate use with traditional magnetic stripe readers. *E.g.*, Ex. 1009, 1:50-52; Ex. 2031, ¶ 94. Nor does Fox disclose magnetic stripe data emulation or swipe emulation. Ex. 2031, ¶ 94. Rather, Fox merely contemplates passive smartcard circuitry housed within a phone and operable to communicate with a smartcard reader. *See, e.g.*, Ex. 1009, Abstract, 3:26-4:2; Ex. 2031, ¶ 94. Accordingly, contrary to Petitioners' argument, Fox is not combinable with Doughty, and Fox does not fill the fundamental disclosure gaps of Doughty.

Fox articulates a number of disadvantages associated with traditional plastic smartcards. As articulated in the Fox specification, it is disadvantageous to need to insert a smartcard into an external reader such as a point-of-sale system or an ATM. *Id.* at 1:9-30. Fox describes that smartcard functionality in a "plastic-type credit card presents additional problems." *Id.* at 1:31-45. For example, the flexibility required to prevent breakage of the card in a wallet may lead to damage to incorporated electronics necessary for the smartcard functionality. *Id.* Further, smartcards in the form of a credit card may be easily lost. Fox therefore explains that its advantage is to "incorporate the electronics associated with a smart card into an alternative housing arrangement so as to overcome problems and disadvantages associated with flexible plastic smartcards," and that "[a]dditionally, it would be desirable to provide a smartcard that does not require contact with an external reader in order to perform a transaction." *Id.* at 1:46-1:52.

Thus, Fox teaches smartcard functionality incorporated into a cellular phone that communicates with an RF-based point-of-sale system. Ex. 2031, ¶ 97. In particular, Fox contemplates passive RF communication wherein the smartcard circuitry is powered by an RF signal received from a smartcard reader. Ex. 1009, 3:26-4:8; 5:1-25.

Fox's smartcard system is limited to RF communications. Fox does not at all mention or address the creation of a time-varying magnetic field for communications via magnetic swipe or emulating a magnetic swipe. Ex. 2031, ¶ 98. A POSITA would know that smartcard RF communication technology and time-varying magnetic field generation are two completely different communication technologies and involve completely different circuit implementations. *Id.* Nor does Fox teach swiping its invention through a card reader, which is not needed, and a POSITA would in fact understand Fox to discourage card-based (or, substrate-based, using Doughty terminology) transactions, even given the security of the contact-based smartcard. *See* Ex. 1009, 2:16-29; Ex. 2031, ¶ 98.

In particular, Fox says nothing about swiping the mobile phone of Fox through a card reader—something that would be physically impossible, given the form factor of the mobile phone contemplated by Fox. *See* Ex. 1009, Fig. 1 (depicting the “cellular phone 10” of Fox); Ex. 2031, ¶ 99. The form factor of a

mobile phone in Fox or otherwise known around 2004-2005 does not allow swiping of the device through existing point-of-sale magnetic readers. Ex. 2031, ¶ 99. They are at a minimum too thick, and nothing in Fox, Doughty, or Petitioner's arguments remedies this fundamental incompatibility. Ex. 2031, ¶ 99.

2. The Petition Does Not Establish that a POSITA Would Have Either a Reason to Combine Doughty and Fox or an Expectation of Success from the Combination

As described above, to support an obviousness challenge, “[t]he petitioner must . . . articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d at 1380. The petitioner must demonstrate both that a POSITA (1) would have had a reason to combine the asserted references, and (2) would have had a reasonable expectation of success from doing so. *Honeywell Int’l Inc.*, 865 F.3d at 1355.

As with Doughty and Bursch, Petitioners do not articulate any basis for combining Doughty and Bursch with Fox. Petitioners again fail to demonstrate both (1) any motivation a POSITA would have had to combine the references and (2) that a POSITA would have had a reasonable expectation of success.

Specifically, the Petition contends that “[t]o the extent it is argued that further disclosure is required for a mobile phone (claims 1-5, 8-18), **Fox** discloses that the mobile device is a mobile phone,” and that “[a] POSITA would have been motivated to apply **Fox’s** teaching of implementing smartcard functionality in a

mobile telephone to **Doughty**'s 'telecommunications device.'" Pet. at 69. But Petitioners fail to address several fundamental, contradictory differences between the references that would discourage a POSITA from making the proposed combination. Instead, Petitioners rely solely on impermissible hindsight. *See Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1069 (Fed. Cir. 2018) (finding that a reference's "statements regarding preferences are relevant to a finding regarding whether a skilled artisan would be motivated to combine that reference with another reference" and must be considered to avoid hindsight bias).

In particular, Petitioners fail to acknowledge that Doughty and Fox represent two different, incompatible technologies. Ex. 2031, ¶ 107. Fox is a passive RF system utilizing standard protocols, technologies, and interfaces to effectuate communication between a point of sale system and a smartcard housed within a cellular phone, and which explicitly discourages contact between the cellular phone and a card reader. Ex. 2031, ¶ 107; Ex. 1009, 1:31-52; 3:26-4:8; 5:1-25. In contrast, Doughty teaches magnetic stripe data emulation to effectuate a transaction, where all enabled embodiments take the form of a credit card that is required to physically swipe a magnetic card reader. Ex. 2031, ¶ 107. A POSITA would understand that these different protocols and technologies are fundamentally incompatible, because the communication of information is done through different technologies to be combined into one technology or solution, both because the

communication of information is done through different technologies, different protocols, and different physical interaction. Ex. 2031, ¶¶ 107, 109; *see also In re Urbanski*, 809 F.3d 1237, 1243 (Fed. Cir. 2016) (“[I]f references taken in combination would produce a ‘seemingly inoperative device,’ ... such references teach away from the combination and thus cannot serve as predicates for a prima facie case of obviousness.” (quoting *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1354 (Fed. Cir. 2001))).

Additionally, a POSITA would not be motivated to combine Fox and Doughty because the cellular phone of Fox cannot be swiped through the magnetic card reader required by Doughty. Ex. 2031, ¶ 108. In fact, Doughty teaches the opposite of Fox. Doughty encourages “a semi-flexible material such as plastic, or a laminate material” taking the form of a credit card that “will interface with existing world-wide magnetic stripe readers without the use of adapters or bridges.” Ex. 1005, [0008], [0046]. This semi-flexible plastic card then must be swiped through a typical magnetic stripe reader. *Id.* at [0051] (“a time-varying signal can be transmitted to the heads of the magnetic card reader ***as the card is swiped through the reader***”); [0052] (“Once the card is alerted that it is being swiped through the reader....”). This “substrate” is always present in Doughty’s disclosures. Ex. 2031, ¶ 108. Fox, on the other hand, teaches the exact opposite. Fox is a system directed to an “alternate housing arrangement so as to overcome

problems and disadvantages associated with flexible plastic smartcards” both by avoiding the plastic card format and by instituting a contactless, swipeless protocol to avoid interaction with an “external reader.” Ex. 1009, 1:46-52; Ex. 2031, ¶ 108. A POSITA would not be motivated to combine a system seeking to improve a card and its swipe through typical machinery and a system seeking to avoid the card form and the associated physical interaction with their smartcard readers entirely. Ex. 2031, ¶ 108; *see also In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984) (where a reference, if modified as suggested, “would be rendered inoperable for its intended purpose,” there is no obviousness).

Petitioners make the limited argument that Fox discloses the mobile phone of [1.pre]. They do not argue, and their expert, Mr. Dreifus, does not opine, that Fox discloses the time-varying magnetic field limitations of the claims of the ’423 patent. *See* Pet. at 69-70.

Because Fox cannot cure the “mimics a swipe” or “single transaction account number” shortfalls of Doughty in view of Bursch, and because the systems function on two different and incompatible technologies and protocols, the combination would fail technically, and a POSITA would not be motivated to combine these two references. Ex. 2031, ¶¶ 100-109.

Nor does Petitioner’s expert’s conclusory testimony fill this gap. Conclusory expert testimony is not sufficient to demonstrate a “reasonable expectation of

success.” *See, e.g., Juniper Networks, Inc. v. Correct Transmission, LLC*, IPR2021-00682, 2022 WL 5061984, at *11 (PTAB Oct. 3, 2022) (petitioner’s reliance on “conclusory” expert testimony alone was “not persuasive” and failed to demonstrate a reasonable expectation of success), *aff’d*, No. 2023-1046, 2024 WL 3517862, at *4 (Fed. Cir. July 24, 2024) (affirming Board’s determination that expert testimony that was “conclusory,” “not credible,” and did not evidence a reasonable expectation of success). As to the combination of Fox and Doughty, Petitioners and Petitioners’ expert merely assert that “a POSITA would have had a reasonable expectation of success,” “would have known such a combination . . . would predictably work,” and would have found such combination “straightforward and advantageous.” Pet. at 70-71; Ex. 1003, ¶¶ 191-192. These conclusory statements are inadequate to demonstrate a reasonable expectation of success, especially given the specific testimony from Patent Owner’s expert explaining that a POSITA would have been discouraged from combining the references based on the different protocols, technologies, and form factors used, and that, if combined, the two references would create an inoperable device that did not serve the purpose of either reference. Ex. 2031, ¶ 109.

Altogether, Petitioners have failed to meet their burden to show that a POSITA would have combined Fox with Doughty to arrive at the claims of the ’423 patent. This combination is inoperable and could only be based on hindsight.

VI. SECONDARY CONSIDERATIONS

For the foregoing reasons, Petitioners have failed to establish a reasonable likelihood that any of the challenged claims is unpatentable, and institution should be denied on the basis of those reasons alone. Patent Owner acknowledges that Petitioners have attempted to rebut arguments regarding secondary considerations, also known as objective indicia of nonobviousness. *See* Pet. at 71. Patent Owner does not waive its rights to address objective indicia of nonobviousness later in these proceedings.

VII. CONCLUSION

The Petition does not establish a reasonable likelihood that any of the challenged claims are unpatentable. Institution should be denied.

Dated: July 16, 2025

Respectfully Submitted,

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WORD-COUNT CERTIFICATE

The undersigned certifies that the foregoing Patent Owner's Preliminary Response complies with the type-volume limitation of 37 C.F.R. § 42.24(a) and (b) and contains 9,824 words in 14-point Times New Roman font as calculated by the word count feature of Microsoft Office. This word count is inclusive of all text and footnotes but does not include the table of contents, table of authorities, certificates or service or word count, or appendix of exhibits or claim listing.

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CERTIFICATE OF SERVICE

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